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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,483	12/18/2000	Johan Christiaan Fitter	33236/207269	9478

28147 7590 08/09/2004

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EXAMINER	
CANTELMO, GREGG	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 08/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/739,483	FITTER, JOHAN CHRISTIAAN	
	Examiner	Art Unit	
	Gregg Cantelmo	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-36,39,41-46 and 48-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29-36,39,41-46 and 48-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 8, 2004 has been entered.

Response to Amendment

1. In response to the amendment received July 8, 2004:

   a. Claims 1-28, 37, 38, 40 and 47 have been cancelled. Claims 29-36, 39, 41-46 and 48-52 are pending;

   b. The claim objections are withdrawn in light of the amendment;

   c. The 112 rejections are withdrawn in light of the amendment;

   d. The prior art rejections of JP '785 and JP '728 stand;

   e. The obviousness-type double patenting rejection stands.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 29, 39, 41-44, 46 and 48-52 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-302 785 A (JP '785).

JP '785 discloses an electrochemical cell comprising opposed positive and negative electrodes, an electrolyte in ionic contact with the electrodes and a charge dependent impeding means (fatty acid film) in contact with the electrolyte. A fatty acid, being the charge dependent impeding means is active when overcharging occurs (abstract) and suppresses hydrogen generation. The fatty acid responds to the overvoltage and thus is charge dependent and impedes the generation of hydrogen. Applicant is reminded that claim 29 is drawn to an electrochemical cell and not a method of operating or manufacturing the electrochemical cell. Thus the aspects of claim 29 which have been accorded patentable weight are only those limitations which define the cell alone and not process of making or process of using (as applied to claims 29 and 43).

The fatty acid, zinc stearate (paragraph [0016]) contains oxygen which is an element in the 6^{th} periodic group (as applied to claim 41).

JP '785 is drawn to a method of reducing liquid loss in an electrochemical cell having opposed positive and negative electrodes, and electrolyte in contact with the electrodes and being disposed to cause electrolysis of the electrolyte when a sufficient amount of potential is applied across the electrodes, the method including the steps of providing a charge dependent impeding means (fatty acid) in fluid communication with

the negative electrode for impeding the gassing charge, the charge dependent impeding means forms a film on the "active material front face" of the negative electrode (paragraph [0013]) and is activated by the overvoltage (charge corresponding to the gassing charge) and is not active below the gassing charge, applying a charging cycle to the cell wherein the fatty acid is activated in response to an overvoltage to reduce the generation of hydrogen gas. The fatty acid is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte, see paragraph [0013]). A fatty acid, being the charge dependent impeding means is active when overcharging occurs (abstract) and suppresses hydrogen generation. The fatty acid film (current impeding medium) suppresses hydrogen generation (thus reduces electrolysis) and reduces the current in the cell between the electrodes. The fatty acid responds to the overvoltage and thus is charge dependent and impedes the generation of hydrogen (abstract as applied to claim 42).

When a overvoltage is applied to the electrodes the fatty acid film formed on the active material of the negative electrode traps gas bubbles evolving from the negative electrode (abstract). The fatty acid contains hydrogen gas bubbles which evolve from the negative electrode which the acid is formed on (as applied to claim 44).

The battery is a rechargeable lead acid battery used in automobiles which is a secondary battery (paragraphs [0002] and [0003] as applied to claim 46).

The charge dependent impeding means (fatty acid) in fluid communication with the negative electrode for impeding the gassing charge, the charge dependent impeding means forms a film on the "active material front face" of the negative electrode

(paragraph [0013]) and is activated by the overvoltage (charge corresponding to the gassing charge) and is not active below the gassing charge, applying a charging cycle to the cell wherein the fatty acid is activated in response to an overvoltage to reduce the generation of hydrogen gas. The fatty acid is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte, see paragraph [0013]). A fatty acid, being the charge dependent impeding means is active when overcharging occurs (abstract) and suppresses hydrogen generation.

The fatty acid film formed on the negative electrode forms a layer through which ions must traverse to reach the negative electrode and thus impedes the flow of ions to the negative electrode. Furthermore the amount of gas bubbles which are contained in the fatty acid effectively occupy portions of the fatty acid film. The presence of such gas bubbles will inherently impede the flow of ions through the barrier and thus the amount of gas bubble expectedly and inherently corresponds to the impediment of ions attracted through the fatty acid film to the negative electrode (as applied to claim 48).

The barrier impedes ions associated with a lead acid battery (Title, as applied to claim 49).

The fatty acid, zinc stearate (paragraph [0016]) contains oxygen which is an element in the 6th periodic group (as applied to claim 50).

JP '785 is drawn to a method of reducing liquid loss in an electrochemical cell having opposed positive and negative electrodes, and electrolyte in contact with the electrodes and being disposed to cause electrolysis of the electrolyte when a sufficient

amount of potential is applied across the electrodes, the method including the steps of providing a charge dependent impeding means (fatty acid) in fluid communication with the negative electrode for impeding the gassing charge, the charge dependent impeding means forms a film on the "active material front face" of the negative electrode (paragraph [0013]) and is activated by the overvoltage (charge corresponding to the gassing charge) and is not active below the gassing charge, applying a charging cycle to the cell wherein the fatty acid is activated in response to an overvoltage to reduce the generation of hydrogen gas. The fatty acid is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte, see paragraph [0013]). A fatty acid, being the charge dependent impeding means is active when overcharging occurs (abstract) and suppresses hydrogen generation. The fatty acid film (current impeding medium) suppresses hydrogen generation (thus reduces electrolysis) and reduces the current in the cell between the electrodes. The fatty acid responds to the overvoltage and thus is charge dependent and impedes the generation of hydrogen (abstract as applied to claims 51 and 52).

Response to Arguments

4. Applicant's arguments filed July 8, 2004 have been fully considered but they are not persuasive.

Applicant argues that the prior art of record does not teach of the charge dependent impeding means be disposed in the aqueous electrolyte.

The Examiner is not persuaded by this argument.

It should be noted that the invention is drawn to the electrochemical cell and as such is not limited by intermediary method steps through which the end-product electrochemical cell is produced.

A thorough review of the disclosure of the instant invention as it relates to the instant claims shows that the final arrangement of the charge dependent impeding means relative to the electrolyte and negative electrode is such that the charge dependent impeding means forms a barrier between the electrode 32 and electrolyte (see Fig. 6). While the method of manufacturing may call for adding the charge dependent impeding means to the electrolyte, the electrochemical cell itself, as shown in Fig. 6, does not show a random dispersion of the charge dependent impeding means throughout the electrolyte, but rather of a barrier or porous film on the surface of the anode.

It is the structural arrangement of each of these features that have been accorded patentable weight and not an intermediary step of introducing the charge dependent impeding means where after the charge dependent impeding means effectively coats the anode.

In comparing the instant claimed electrochemical cell, relative to the disclosure of JP '785 there is insufficient structural distinction between the charge dependent impeding means of JP '785 relative to the negative electrode and electrolyte.

In light of the Examiner's rebuttal to Applicant's argument this argument is not persuasive.

Applicant then argues that the fatty acid of JP '785 is formed within the negative electrode active material and thus can only be added during construction of the anode prior to assembly of the battery.

This argument is not persuasive for two significant reasons:

First, as discussed above, the claims are not drawn to a method of manufacturing an electrochemical cell but are rather drawn to either the electrochemical cell itself or a method of operating the electrochemical cell. Given this, the method of manufacturing the cell has no bearing on the patentability of the cell or method of using the cell.

Second, the Examiner disagrees with Applicant's narrow interpretation of the JP '785 reference. JP '785 forms "the coat of a fatty acid in the active material front face" (paragraph [0013]). Thus the fatty acid is formed on the electrode front face surface. Thus would have to be the front face which faces the electrolyte and positive electrode in order to effectively provide the hydrogen suppression characteristics as defined in the abstract and within the disclosure of the JP '785 reference. Therefore contrary to the Applicant's position, the Examiner maintains that the fatty acid is in fact formed on the surface which faces the electrolyte.

In light of the Examiner's rebuttal to Applicant's argument this argument is not persuasive.

Lastly Applicant argues that "no such fatty acid "film" is believed formed in accordance with Applicant's invention.

The Examiner is not persuaded by this and in fact disagrees with the alleged "belief" for the following reasons:

First, absent any clear evidence to support this position, Applicant's "belief" is at best their opinion. As such, that alone fails to convince the Examiner that Applicant cannot furnish clear and convincing evidence the support their own belief relative to their own invention.

Second, the term "film" in quotations is not readily understood in so far as Applicant is interpreting this term.

Third, the original disclosure itself teaches to the formation of a film as shown in Fig. 6 and further described in the abstract of the disclosure. The abstract states that the "additive typically coats the negative electrode to form a barrier ...". This statement in combination with the barrier configuration in Fig. 6 wherein the barrier 40/42 is shown as a porous barrier between the electrode and electrolyte, clearly teaches a degree of a coating or film formed on the negative electrode.

In light of the Examiner's rebuttal to Applicant's argument this argument is not persuasive.

As stated previously, the Examiner has reviewed Applicant's Declaration and has not disregarded it. However the Declaration fails to provide clear and convincing evidence that the prior art fatty acid of JP '785 cannot be reasonably construed as a charge dependent means. Item 8 of the Declaration is clearly described as Mr. Fitter's personal opinion. In the absence of any factual evidence, the Declaration is not persuasive and the rejection stands.

Nor has the Examiner relied solely on speculations. As set forth above, the prior art of JP '785 appears to disclose the same arrangement as recited in the instant claim. While the prior art does not expressly use the terminology "charge dependent means" the prior art uses a fatty acid, being the charge dependent impeding means is active when overcharging occurs (abstract) and suppresses hydrogen generation. The fatty acid responds to the overvoltage and thus is charge dependent and impedes the generation of hydrogen.

Therefore there is a reasonable expectation, absent clear and convincing evidence to the contrary that the fatty acid of JP '785 does in fact function as a charge dependent means.

Claim Rejections - 35 USC § 102

5. Claims 29-31, 34-36, 42-46, 48-49 and 51-52 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 50-091728 (JP '728).

JP '728 discloses an electrochemical cell comprising opposed positive and negative electrodes, an electrolyte in ionic contact with the electrodes and a charge dependent impeding means, dodecyldimethylbenzylammonium chloride, in fluid communication with the negative electrode for impeding gassing charge. Hydrogen is generated by the cell (abstract). The ammonium compound, being the same material exemplified and disclosed in the instant application will provide the same functions, absent clear evidence to the contrary. Furthermore, Applicant is reminded that claim 29 is drawn to an electrochemical cell and not a method of operating or manufacturing the

electrochemical cell. Thus the aspects of claim 29 which have been accorded patentable weight are only those limitations which define the cell alone and not process of making or using the cell (as applied to claim 29).

The charge dependent impeding means is dodecyldimethylbenzylammonium chloride (as applied to claims 29-31).

The additive is added in various weight percents (see page 142 of the reference) which overlap the additive range of claims 34 and 35.

The quaternary ammonium salt is soluble in a 30% KOH electrolyte solution (as applied to claim 36).

JP '728 is drawn to a method of reducing liquid loss in an electrochemical cell having opposed positive and negative electrodes, and electrolyte in contact with the electrodes and, the method including the step of introducing into the cell a charge dependent impeding means, dodecyldimethylbenzylammonium chloride. The ammonium compound of JP '728 is the same as the materials of the instant application and has the same inherent properties and functionality, absent clear evidence to the contrary. The dodecyldimethylbenzylammonium chloride is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte). Hydrogen is clearly generated by the cell and thus the potential applied to the cell is one which causes hydrogen generation and further electrolysis of the electrolyte (abstract). The dodecyldimethylbenzylammonium chloride (charge dependent impeding means) suppresses hydrogen generation (abstract as applied to claim 42).

JP '728 discloses an electrochemical cell comprising opposed positive and negative electrodes, an aqueous electrolyte in ionic contact with the electrodes, the electrochemical cell further comprising a charge dependent impeding means, dodecyldimethylbenzylammonium chloride. The ammonium compound of JP '728 is the same as the materials of the instant application and has the same inherent properties and functionality, absent clear evidence to the contrary (abstract as applied to claim 43). The dodecyldimethylbenzylammonium chloride is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte). Hydrogen is clearly generated by the cell and thus the potential applied to the cell is one which causes hydrogen generation and further electrolysis of the electrolyte. The dodecyldimethylbenzylammonium chloride, which is formed on the active material of the negative electrode reduces the flow of gas bubbles from the negative electrode. The dodecyldimethylbenzylammonium chloride (charge dependent impeding means) suppresses hydrogen generation and blocks pathways for the ions in the electrolyte to reach the electrode and this impedes ion attraction to the negative electrode (abstract as applied to claim 43).

Since the charge dependent impeding means, dodecyldimethylbenzylammonium chloride, is the same material as that disclosed in the instant application it is expected to have the same effect on reducing water loss, reducing gas evolution, and having a head for adsorbing to the negative electrode and a and tail arrangement to trap gas bubbles (abstract as applied to claim 44).

The charge dependent impeding means in fluid communication with the negative electrode for impeding the gassing charge, the quaternary ammonium charge dependent impeding mean of the prior art is expected to have the same ionic character and thus will form between the negative electrode and electrolyte in such a manner that the head portions of the quaternary ammonium are attracted to the negative electrode and the tail portion extends into the electrolyte (as applied to claim 45).

The battery is a recharging battery (has charging and discharging functions) and is exemplary of a secondary battery (abstract as applied to claim 46).

The cell has an inherent threshold potential and given that the medium of JP '728 is a material exemplified by the instant application as a charge dependent impeding means, the dodecyldimethylbenzylammonium chloride medium is a barrier or impediment as discussed above and is self regulating. Thus the greater the amount of electrolysis, the greater the number of gas bubbles trapped and the more effective the impediment or barrier to the flow of ions to the negative electrode, thereby the more electrolysis is reduced, and vice versa (as applied to claims 43 and 48).

The barrier impedes ions associated with zinc alkaline batteries (as applied to claim 49).

JP '728 discloses an electrochemical cell comprising opposed positive and negative electrodes, an aqueous electrolyte in ionic contact with the electrodes, the electrochemical cell further comprising a charge dependent impeding means, dodecyldimethylbenzylammonium chloride. The ammonium compound of JP '728 is the same as the materials of the instant application and has the same inherent properties

and functionality, absent clear evidence to the contrary (abstract as applied to claims 51 and 52). The dodecyldimethylbenzylammonium chloride is the charge dependent impeding means which is formed on the active material (of an electrode and therefore in contact with the electrolyte). Hydrogen is clearly generated by the cell and thus the potential applied to the cell is one which causes hydrogen generation and further electrolysis of the electrolyte. The dodecyldimethylbenzylammonium chloride, which is formed on the active material of the negative electrode reduces the flow of gas bubbles from the negative electrode. The dodecyldimethylbenzylammonium chloride (charge dependent impeding means) suppresses hydrogen generation and blocks pathways for the ions in the electrolyte to reach the electrode and this impedes ion attraction to the negative electrode (abstract as applied to claims 51 and 52).

Response to Arguments

6. Applicant's arguments filed July 8, 2004 have been fully considered but they are not persuasive.

Applicant appears to argue that the quantities of the quaternary ammonium salt added to the cell as discussed in JP '728 do not provide the charge dependent impeding means as recited in the instant claims. Applicant bases the Declaration as evidence to such.

This argument is not persuasive for the following reasons:

First the comparison made in the Declaration is not a clear and true side-by-side comparison between the disclosure of the prior art of JP '728 and the claimed invention.

Second the comparison made by Applicant is for a concentration of about 1% of the quaternary ammonium disclosed in JP '728. While the comparison made by Applicant in the Declaration may be valid for a concentration of about 1%, it fails to provide evidence that the prior art does not provide the charge dependent impeding means as recited in the instant claims for the full range of the concentration of the quaternary ammonium salt added as disclosed in JP '728, such as 3%.

For these reasons the Declaration fails to provide sufficient evidence that the prior art of record does not provide the charge dependent impeding means as recited in the instant claims. Subsequently, Applicant's argument fails to persuade the Examiner and the rejection stands.

As stated previously, the Examiner has reviewed Applicant's Declaration and has not disregarded it. However the Declaration fails to provide clear and convincing evidence that the prior art fatty acid of JP '728 cannot be reasonably construed as a charge dependent means. Item 8 of the Declaration is clearly described as Mr. Fitter's personal opinion. In the absence of any factual evidence, the Declaration is not persuasive and the rejection stands.

Nor has the Examiner relied solely on speculations. As set forth above, the prior art of JP '728 appears to disclose the same arrangement as recited in the instant claim. While the prior art does not expressly use the terminology "charge dependent means" the prior art uses dodecyldimethylbenzylammonium chloride, in fluid communication with the negative electrode for impeding gassing charge. The *ammonium compound of*

JP '728, being the same material exemplified and disclosed in the instant application will inherently provide the same functions, absent clear evidence to the contrary.

Therefore there is a reasonable expectation, absent clear and convincing evidence to the contrary that the dodecyldimethylbenzylammonium chloride of JP '728 does in fact function as a charge dependent means.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 29-33,36, 39, 42-46, 48-49 and 51-52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 11, 15 and 16 of U.S. patent Application Publication No. 2002/0038765 (US Pub. '765). Although the conflicting claims are not identical, they are not patentably distinct from each other.

US Pub. '765 claims an electrochemical cell comprising a positive electrode, an opposed negative electrode, and an aqueous electrolyte for use in a battery cell, the electrolyte being in ionic contact with the negative electrode. An additive material is provided for inhibiting electrodeposition on the negative electrode (claim 11). The additive material is recited in claim 16 which is the same materials disclosed and claimed in the instant application as the current reducing additive. Since these materials are the same, they are expected to have the same inherent properties (as applied to instant claims 29-31). The limitations of claims 11 and 16 anticipate the limitations of instant claims 29-31.

US Pub. '765 provides an electrochemical cell having a step of providing n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulfosuccinate to an electrochemical cell having an electrolyte and electrodes. Since these materials are the same, they are expected to have the same inherent properties (claims 11 and 16 as applied to instant claims 32and 436).

The additive has 8-28 carbon atoms which encompasses the range of 12-16 carbon atoms (claim 8 as applied to claim 33).

The battery is a lead acid battery (claim 15 as applied to instant claim 39).

US Pub. '765 claims an electrochemical cell comprising opposed positive and negative electrodes and aqueous electrolyte in ionic contact with the electrodes and a current reducing additive, n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulfosuccinate (claim 16). The electrolyte is engendered with a deposition modifying agent, n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulfosuccinate, for

inhibiting dendritic electrodeposition on the negative electrode. The modifying agent being the same as the current reducing additive of the instant application is arranged in the electrolyte as in the instant application and is held to be arranged to adhere or adsorb to the negative electrode and form an impediment or barrier over a surface of the negative electrode (claims 11 and 16 as applied to claim 43). Since these materials are the same, they are expected to have the same inherent properties (claims 11 and 16 as applied to instant claims 43, 44, 45 and 48).

The battery is a secondary battery (claim 14 as applied to instant claim 46).

The cell has an inherent threshold potential and given that the medium of US Pub. '765 is a material exemplified by the instant application as a current impeding medium, the n-alkyl dimethyl benzyl ammonium chloride medium is a barrier or impediment as discussed above and is self regulating. Thus the greater the amount of electrolysis, the greater the number of gas bubbles trapped and the more effective the impediment or barrier to the flow of ions to the negative electrode, thereby the more electrolysis is reduced, and vice versa (claim 16 as applied to instant as applied to claim 48).

The battery has a flow of ions conventionally used in lead acid battery cells and other electrochemical cells (claim 11 as applied to instant claim 49).

The ammonium compound formed on the negative electrode forms a layer through which ions must traverse to reach the negative electrode and thus impedes the flow of ions to the negative electrode (as applied to claims 43, 44 and 48).

The difference between the instant claims and claim 11 of US Pub. '765 is that claim 11 of US Pub. '765 does not explicitly recite that the aqueous electrolyte is in ionic contact with both the negative and positive electrodes.

In order for the electrochemical cell to effectively operate it is imperative that the electrolyte be in ionic contact with both the positive and negative electrodes. These three components when in ionic contact provide for ion mobility between the electrodes.

The motivation for providing the electrolyte in ionic contact with both the negative and positive electrodes is that it enables ionic mobility between the opposed electrodes.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the claims of US Pub. '765 by having the electrolyte in ionic contact with both the negative and positive electrodes since it would have enabled ionic mobility between the opposed electrodes through the electrolyte of an electrochemical cell.

US Pub. '765 claims an electrochemical cell comprising opposed positive and negative electrodes and aqueous electrolyte in ionic contact with the electrodes and a current reducing additive, n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulfosuccinate (claim 16). The electrolyte is engendered with a deposition modifying agent, n-alkyl dimethyl benzyl ammonium chloride or sodium dioctyl sulfosuccinate, for inhibiting dendritic electrodeposition on the negative electrode. The modifying agent being the same as the current reducing additive of the instant application is arranged in the electrolyte as in the instant application and is held to be arranged to adhere or adsorb to the negative electrode and form an impediment or barrier over a surface of

the negative electrode (claims 11 and 16 as applied to claims 51 and 52). Since these materials are the same, they are expected to have the same inherent properties (claims 11 and 16 as applied to instant claims 51 and 52).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

9. Applicant's arguments filed July 8, 2004 have been fully considered but they are not persuasive.

Applicant response does not address this rejection, therefore the rejection stands.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is (571) 272-1283. The examiner can normally be reached on Monday to Thursday from 9 a.m. to 6 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. FAXES received after 4 p.m. will not be processed until the following business day. Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gregg Cantelmo
Primary Examiner
Art Unit 1745

gc

August 4, 2004